

Update on Korean TRI Registry

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Korean Multicenter TRI Registry **(Data from Korean TRI Working** **Group)**

-On behalf of Korea TRI Working Group-

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Background (1)

1. The femoral artery has been the usual vascular access route for the routine percutaneous coronary intervention (PCI), especially for complex coronary intervention including bifurcation, chronic total occlusion (CTO) and left main (LM) lesion.
2. However, because of the higher incidence of major bleeding and vascular complications of transfemoral intervention (TFI), transradial intervention (TRI) is drastically increasing in every intervention society in all over the world.

Background (2)

3. These days, the TRI is becoming a major vascular access or default access site in many catheterization laboratories in Korea because of the great advantages including significantly reduced local complications associated with vascular access, improved patient's convenience, shorter hospitalization and less cost.
4. Further, TRI is becoming more fancy and popular not only in the field of coronary intervention but also in the peripheral intervention.

Background (3)

5. Further, TRI is becoming more fancy and popular not only in the field of coronary intervention but also in the peripheral intervention.

; This rapid expansion might have been caused by

- 1) Great improvement of technology in the industries for the miniaturization of the transradial devices,
- 2) Development of new intervention techniques and skills
- 3) Accumulated experience of TRI societies with the time.

Korean Retrospective TRI Registry

-7 TRI Center Study-

1. Study Period; Jan-Dec 2009 (1 year)
2. Korean Multicenter Retrospective PCI registry
3. Study Purposes
 - 1) Understanding current status of TRI in Korea, especially at DES era
 - 2) Korean Data for TRI vs. TFI

Seven Centers and Investigators (2010.3 TRI Club meeting)

1. Korea University Guro Hospital; Rha SW, Choi CU, Oh DJ
2. Chonnam University Hospital; Sim DS, Jeong MH
3. YonSei University Wonju Christian Hospital; Yoon YJ, Yoon JH
4. Dong-A University Hospital; Kim MH
5. GangNeung Asan Hospital; Yoo SY, Jeong SS
6. SoonChunHyang University Hospital; Hyun MS
7. Inje University SangGye Paik Hospital; Kim BO

TRI vs. TFI registration

	Total	Radial	Femoral	Missing	F/U rate(6Month)
Dong-A	628	466 (78.7)	126 (21.3)	36	282 (45.0)
SangGye Paik	76	40 (58.0)	29 (42.0)	7	9 (11.9)
SoonChunHyang	152	118 (77.6)	34 (22.4)	0	84 (55.3)
ChonNam	1202	85 (7.8)	1008 (92.2)	109	621 (51.7)
GangNeung Asan	399	369 (93.4)	26 (6.6)	4	229 (57.3)
Korea University Guro Hospital	579	147 (25.5)	430 (74.5)	2	265 (45.8)
Wonju Christian Hospital	1308	1187 (90.7)	121 (9.3)	0	972 (74.3)
Total	4344	2412 (57.6)	1774 (42.4)	158	2462 (56.7%)

Methods

1. A total **4215** consecutive patients (pts) were enrolled from 7 major enrolled hospitals by filling out retrospective case report form (CRF).
2. All the pts in real-world clinical practice without any obvious exclusion criteria.
3. **Study Groups**
; Pts were divided into two group according to the vascular access route.

Transradial Intervention Group (TRI Group)
(n=2639 pts, **62.6%**)

Transfemoral Group (TFI Group)
(n=1576 pts, **37.4%**)

Methods

4. Antiplatelet Regimen

- 1) All pts received Aspirin; 100 mg orally.
- 2) All pts received Clopidogrel (Plavix[®]) preloaded 300-600 mg before PCI, followed by daily administration of 75 mg and encouraged to continue at least for 1 year.
- 3) Usage of adjunctive Cilostazol to dual antiplatelet regimen (asprin + clopidogrel) was depending on physician's discretion. Cilostazol was administered by 200mg post-loading and then 100mg bid for at least one month

Methods

5. Antithrombotic therapy used for PCI

- 1) Enoxaparin (Clexane[®]); 60mg bid before PCI and after PCI during the hospital stay (within 7 days).
- 2) Unfractionated Heparin; a bolus of 50 U/kg prior to PCI for 1st one hour
- 3) GP IIb/IIIa blocker (Reopro[®]); depend on physician's discretion.

Statistics (1)

1. All statistical analyses were performed using SPSS 17.0.
2. Continuous variables were expressed as means \pm standard deviation and were compared using Student's t-test.
3. Categorical data were expressed as percentages and were compared using chi-square statistics or Fisher's exact test.
4. A *P*-value of 0.05 was considered statistically significant.

Statistics (2)

5. To rule out the confounding effects from the baseline biases, multivariate Cox regression analysis were performed.
6. Confounding factors included HTN, DM, Smoking, Dyslipidemia, Previous_PCI, Previous_CVA_or_TIA, Previous_Hx_PAD, CRI, Stentthrombosis, Cardio_Shock, CVAStrokeTIAICH, Transfusion, Decrease_Hct, Access_Site_Hematoma_Femoral, Pseudoaneurysm_access_site, Dissection, AV_Fistula, Limb_ischemia, Site(radial/femoral).

Study end points

- 1. Demographic data of TRI in Korea-
Understanding current TRI in Korea**
- 2. In-hospital Complications (Bleeding
& Vascular Complications)**
- 3. Angiographic and Clinical outcomes
up to 6 months were evaluated.**

Baseline Clinical Characteristics (1)

	Radial (n=2639 pts)	Femoral (n=1576 pts)	p-value
Sex(male)	1459 (65.2)	990 (65.0)	0.926
Age	64.3±10.9	65.1±11.1	0.022
Hypertension	1548 (58.8)	941 (59.8)	0.527
DM	903 (34.3)	562 (35.7)	0.361
Smoking	1337 (50.8)	609 (38.7)	< 0.001
Dyslipidemia	846 (32.2)	247 (15.7)	< 0.001
Prior PCI	478 (18.6)	215 (14.1)	< 0.001
Prior CVA	126 (4.8)	83 (5.3)	0.447
Prior PAD	24 (0.9)	24 (1.5)	0.076
CRI	54 (2.1)	93 (6.0)	< 0.001
LVEF(%)	52.08±11.74	52.5±12.75	0.498

Baseline Clinical Characteristics (2)

	Radial (n=2639 pts)	Femoral (n=1576 pts)	p-value
AMI	1003 (38.0)	745 (47.3)	< 0.001
STEMI	481 (48.0)	400 (53.7)	0.018
NSTEMI	522 (52.0)	345 (46.3)	0.018
Total Cholesterol	176.3 ± 46.0	176.4 ± 43.9	0.897
Triglyceride	137.4 ± 100.2	133.8 ± 92.7	0.261
HDL-C	44.5 ± 19.9	42.6 ± 13.1	0.001
LDL-C	107.0 ± 37.2	110.6 ± 41.7	0.005
CKMB(max)	64.4 ± 104.7	71.5 ± 125.9	0.307
hs CRP	1.37 ± 4.2	10.6 ± 29.1	< 0.001
Glucose	116.2 ± 45.3	146.6 ± 77.3	< 0.001
Creatine(max)	1.14 ± 0.69	1.34 ± 1.48	< 0.002

Baseline Procedural Characteristics (1)

Access	Radial (n=2639 pts)	Femoral (n=1576 pts)	Other*
Rt Access	1781 (67.5)	1537 (97.5)	-
Lt Access	858 (32.5)	39 (2.5)	-

	Radial (n=2639 pts)		Femoral (n=1576 pts)
Closure Method		Closure Method	
Manual	938 (35.9)	Manual	1105 (70.7)
Device	1673 (64.1)	Device	458 (29.3)
Closure Device		Closure Device	
TR band (Terumo)	442 (26.4)	Perclose	370 (80.8)
Radistop	1193 (71.3)	Angioseal	78 (17.0)
Others Device	1 (0.1)	Others Closures	1 (0.2)
PAD	37 (2.2)	PAD	9 (2.0)

* Others; Ulnar & Brachial approach

Baseline Procedural Characteristics (2)

	Radial (n=2639 pts)	Femoral (n=1576 pts)	p-value
Changing access route for PCI	7 (0.3)	23 (11.5)	< 0.001
Stent overlapping	379 (32.3)	167 (13.0)	< 0.001
Stents*	2564 (97.5)	1460 (93.1)	< 0.001
Stent number/ pt	±	±	
Post balloon	1476 (57.0)	485 (32.7)	< 0.001

*DES (Drug-eluting stent) Penetration

1. Total; 1649/1748pts=94.3%

2. TRI; 958/961pts=99.7%

Stent Information; DES vs. BMS

	Radial (n=2639 pts)	Femoral (n=1576 pts)	p-value
DES			<0.001
SES (Cypher)	292 (11.6)	149 (10.3)	
PES (Taxus)	451 (17.8)	399 (27.5)	
ZES (Endeavor)	809 (32.0)	366 (25.2)	
EES (Promus/Xience)	960 (38.0)	440 (30.3)	
BMS	15 (0.6)	97 (6.7)	

Transradial Approach

	Radial (n=2639 pts)	Femoral (n=1576 pts)
Guide catheter		
JL	511 (20.5)	179 (21.7)
JR	318(12.8)	152 (18.5)
AL	115 (4.6)	40 (4.9)
AR	212 (8.5)	47 (5.7)
EBU	292 (11.7)	315 (38.4)
XB	847 (34.0)	73 (8.8)
IL 4 (Ikari)	65 (2.6)	2 (0.2)
IR 1.5 (Ikari)	22 (0.9)	-
Other	105 (4.2)	14 (1.7)
Guide catheter size		
5Fr	102 (4.2)	4 (0.5)
6Fr	2271 (89.5)	319 (38.1)
7Fr	154 (6.0)	477 (57.0)
8Fr	8 (0.3)	37 (4.4)
035-Guide wire (mean./Fr)	6.54 ± 5.7	7.20 ± 6.0
Cook	2 (0.1)	766 (48.6)
Terumo 1.5J	1625 (61.6)	34 (2.1)
UniQual	76 (2.9)	1 (0.1)
Tefron	457 (17.3)	238 (15.1)
Guide right	363 (13.8)	109 (6.9)

In-hospital Complications

	Radial (n=2639 pts)	Femoral (n=1576 pts)	p-value
Cardiogenic shock	20 (0.8)	57 (3.6)	< 0.001
CVA/Stroke/TIA/ICH	10 (0.4)	12 (0.8)	0.095
Transfusion	32 (1.2)	107 (6.8)	< 0.001
Decrease Hct	30 (1.1)	22 (1.4)	0.461
Access site hematoma	1 (0.0)	57 (3.6)	< 0.001
Major hematoma (>4cm)	-	13 (0.8)	< 0.001
Minor hematoma (<4cm)	1 (0.0)	43 (2.7)	< 0.001
Pseudoaneurysm	-	2 (0.1)	0.066
Dissection	1 (0.0)	7 (0.4)	< 0.001
AV fistula	-	1 (0.1)	0.196
Limb ischemia	-	2 (0.1)	0.067

In-hospital Clinical Outcomes

	Radial (n=2639 pts)	Femoral (n=1576 pts)	p-value
Death	36 (1.4)	56 (3.6)	< 0.001
Cardiac Death	21 (0.8)	42 (2.7)	< 0.001
TLR	47 (1.8)	56 (3.6)	< 0.001
TVR	54 (2.0)	72 (4.6)	< 0.001
Non TLR TVR	7 (0.3)	16 (1.0)	0.001
Non TVR	79 (3.0)	33 (2.1)	0.079
TLR MACE*	68 (2.6)	118 (7.5)	< 0.001
TVR MACE**	96 (3.6)	186 (11.8)	< 0.001

*TLR MACE; Cardiac Death, Q-MI, TLR

**TVR MACE; Total Death, Any MI, Repeat PCI

Six months Clinical Outcomes

-Univariate Analysis-

	Radial (n=2639)	Femoral (n=1576)	p-value
Death	41 (2.9)	55 (7.9)	< 0.001
Cardiac	24 (1.7)	34 (4.9)	< 0.001
Non cardiac	12 (0.9)	4 (0.6)	0.483
TLR	35 (2.5)	34 (4.9)	0.004
TVR	43 (3.1)	41 (5.9)	0.002
Non TLR TVR	8 (0.6)	7 (1.0)	0.268
Non TVR	202 (14.4)	35 (5.0)	< 0.001
TLR MACE	58 (4.1)	71 (10.2)	< 0.001
TVR MACE	85 (6.1)	100 (14.3)	< 0.001

Six months Clinical Outcomes

-Multivariate Analysis-

	OR _{unadjusted}	p-value	OR _{adjusted}	p-value
Death	0.386 (0.285-0.524)	< 0.001	0.571 (0.291-1.122)	0.104
Cardiac	0.340 (0.200-0.578)	< 0.001	0.487 (0.207-1.144)	0.099
Non cardiac	1.498 (0.481-4.661)	0.485	3.403 (0.399-29.006)	0.263
TLR	0.500 (0.309-0.809)	0.005	0.298 (0.070-1.266)	0.101
TVR	0.507 (0.327-0.786)	0.002	0.316 (0.095-1.054)	0.061
Non TLR TVR	0.567 (0.205-1.569)	0.274	0.177 (0.018-1.738)	0.137
Non TVR	3.189 (2.20-4.62)	< 0.001	1.702 (0.927-3.125)	0.086
TLR MACE	0.381 (0.266-0.546)	< 0.001	0.422 (0.203-0.878)	0.021
TVR MACE	0.386 (0.285-0.524)	< 0.001	0.476 (0.265-0.858)	0.014

Impact of Left Radial versus Right Radial Access on Midterm Clinical Outcomes in Patients Undergoing Transradial Intervention with Drug- eluting Stents in Asian population

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Left Radial vs. Right Radial?

** Questions

1. Just for operator's preference?
2. What are the risk/benefit?
3. What are the advantages/disadvantages?
4. *Are there outcome difference?*

Methods

1. Study Population

; A total of 2639 consecutive pts who underwent PCI with DESs from nine major hospitals were enrolled from January to December 2009.

2. Study Group

Left radial access group	(n=858, 32.5%)
Right radial access group	(n=1781, 67.4%)

Baseline Clinical Characteristics

<i>Variables, n (%)</i>	Left Access (n= 858 pts)	Right Access (n=1781 pts)	<i>P Value</i>
Sex(male)	498 (48.0)	961 (69.6)	< 0.001
Age	66.39 ± 10.64	63.35 ± 10.87	< 0.001
Hypertension	515 (60.0)	1033 (58.2)	0.372
DM	318 (37.1)	585 (33.0)	0.038
Smoking	479 (55.8)	858 (48.4)	< 0.001
Dyslipidemia	304 (35.4)	542 (30.6)	0.012
Prior PCI	163 (19.0)	315 (18.4)	0.728
Prior CVA	26 (3.0)	100 (5.0)	0.003
Prior PAD	3 (0.3)	21 (1.2)	0.032
CRI	20 (2.3)	34 (1.9)	0.504
LVEF(%)	53.82 ± 11.8	51.16 ± 11.56	< 0.001

In-hospital Complications

<i>Variables, n (%)</i>	Left Access (n= 858pts)	Right Access (n=1781 pts)	<i>P Value</i>
Cardiogenic shock	7 (0.8)	13 (0.7)	0.812
CVA/Stroke/TIA/ICH	0 (0.0)	10 (0.6)	0.028
Transfusion	3 (0.3)	2 (1.6)	0.005
Decrease Hct	6 (0.7)	24 (1.3)	0.141
Access site hematoma	0 (0.0)	1 (0.1)	0.486
Major hematoma (>4cm)	-	-	-
Minor hematoma (<4cm)	0 (0.0)	1 (0.1)	0.486
Pseudoaneurysm	-	-	-
Dissection	0 (0.0)	1 (0.1)	0.486
AV fistula	-	-	-

In-hospital and Clinical Outcomes at 6 Months

<i>Variables, n (%)</i>	Left Access (n= 858pts)	Right Access (n=1781 pts)	<i>P Value</i>
In-hospital Outcomes			
Death	12 (1.4)	24 (1.3)	0.916
Cardiac	7 (0.8)	14 (0.8)	0.936
TLR	1 (0.1)	46 (2.6)	< 0.001
TVR	1 (0.1)	53 (3.0)	< 0.001
Non TLR TVR	0 (0.0)	7 (0.4)	0.066
TLR MACE	8 (0.9)	60 (3.4)	< 0.001
TVR MACE	13 (1.5)	83 (4.7)	< 0.001
6 Month Outcomes			
Death	14 (2.3)	32 (3.0)	0.453
Cardiac	10 (1.7)	17 (1.6)	
Non cardiac	4 (0.7)	15 (1.4)	0.432
TLR	0 (0.0)	39 (3.6)	< 0.001
TVR	1 (0.2)	46 (4.2)	< 0.001
Non TLR TVR	1 (0.2)	7 (0.6)	0.170
TLR MACE	10 (1.7)	56 (5.2)	< 0.001
TVR MACE	15 (2.5)	83 (7.7)	< 0.001

Multivariate Analysis for 6-Month Clinical Outcomes

	<i>OR</i> _{unadjusted}	<i>p-value</i>	<i>OR</i> _{adjusted}	<i>p-value</i>
Death	1.275 (0.675-2.409)	0.454	1.418 (0.711-2.830)	0.321
Cardiac	0.942 (0.428-2.070)	0.942	0.897 (0.373-2.157)	0.897
Non cardiac	1.110 (0.333-3.370)	0.866	1.729 (0.462-6.462)	0.416
TLR	6.029E7 (0.000)	0.991	6.981E7 (0.000)	0.991
TVR	26.590 (3.658-193.29)	0.001	36.012 (4.880-265.735)	< 0.001
Non TLR TVR	3.900 (0.479-31.772)	0.204	8.190 (0.947-70.846)	0.056
TLR MACE	3.219 (1.630-6.358)	0.001	3.574 (1.750-7.299)	< 0.001
TVR MACE	3.239 (1.852-5.667)	< 0.001	3.991 (2.218-7.181)	< 0.001

Summary

1. Baseline characteristics showed that left radial access group were elderly, higher incidence of dyslipidemia, diabetes mellitus and smoking, whereas right radial access group had higher incidence of prior CVA, PAD and lower left ventricular ejection fraction (LVEF).
2. In-hospital complications showed that left radial access group had lower incidence of CVD and transfusion.
3. In-hospital and clinical outcomes up to six months showed that target lesion and vessel revascularization (TLR & TVR) and major adverse cardiac events (MACEs) were lower in the left radial access group .
4. Multivariate analysis showed that left radial access was an independent predictor of TVR (Adjusted OR: 36.01, 95% CI: 4.880-265.735, p-value<0.001) and TVR-MACE (Adjusted OR: 3.991 95% CI: 2.218-7.181, p-value=0.001) at 6 months.

Conclusion

1. In our study, left radial access group in pts undergoing TRI with DESs was associated with lower in-hospital complications and better 6 months clinical outcomes as compared with those of right radial access group.
2. Further study with larger study population should be conducted to understand the results and to make final conclusion.

Seven Centers and Investigators for AMI (2010.3 TRI Club meeting)

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4. Dong-A University Hospital; Kim MH
5. GangNeung Asan Hospital; Yoo SY, Jeong SS
6. KangWon National University Hospital; Cho BH
7. Inje University Pusan Paik Hospital; Kim DI

AMI-Korean TRI Registry

N (%)	AMI	STEMI	NSTEMI	Radial	Femoral	Other	F/U rate(6Month)
KangWon	64	55 (87.3)	8 (12.7)	32 (54.2)	27 (45.8)	-	11/35 (31.4)
Korea University	205	114 (55.6)	91 (44.4)	40 (19.5)	163 (79.5)	2 (1.0)	123/129 (95.3)
Dong-A	296	89 (30.1)	207 (69.9)	208 (74.6)	69 (24.7)	2 (0.7)	143/211 (67.8)
Pusan Paik	157	89 (56.7)	68 (43.3)	107 (68.2)	49 (31.2)	1 (0.6)	84/105 (80.0)
Wonju Christian	570	287 (50.4)	283 (49.6)	499 (87.5)	71 (12.5)	-	446/446 (100)
ChonNam	583	268 (46.0)	315 (54.0)	38 (9.5)	361 (90.5)	-	317/317 (100)
GangNeung	84	76 (90.5)	8 (9.5)	79 (94.0)	5 (6.0)	-	39/43 (90.7)
Total	1958	978 (49.9)	980 (50.1)	1003 (57.2)	745 (42.6)	5 (0.2)	1271/1748 (72.7)

- 6M F/U => PCI registration (Jan-Aug 2009)
- Others; Ulnar & Brachial approach

Study end points

1. Demographic data of TRI in Korea-
Understanding current TRI in Korea
2. In-hospital Complications (Bleeding &
Vascular Complications)
3. Angiographic and Clinical outcomes
up to 6 months were evaluated.

Methods

1. A total **1748** consecutive AMI patients (pts) were enrolled from 7 major enrolled hospitals by filling out retrospective case report form (CRF).
2. All the pts in real-world clinical practice without any obvious exclusion criteria.

3. Study Groups

; Pts were divided into two group according to the vascular access route.

Transradial Intervention Group (TRI Group)
(n=1003 pts, 57.4%)

Transfemoral Group (TFI Group)
(n=745 pts, 42.6%)

Baseline Clinical Characteristics (2)

	Radial (n=1003 pts)	Femoral (n=745 pts)	p-value
STEMI	481 (48.0)	400 (53.7)	0.018
NSTEMI	522 (52.0)	345 (46.3)	0.018
Location			
Ant	523 (68.5)	499 (74.8)	0.010
Inf/Post	376 (49.2)	290 (48.3)	0.747
Lat	273 (35.7)	160 (26.7)	< 0.001
RV	56 (7.3)	29 (4.8)	0.058
IRA			
LM	24 (2.4)	25 (3.4)	0.228
LAD	540 (53.8)	394 (52.9)	0.693
LCX	192 (19.1)	115 (15.4)	0.044
RCA	319 (31.8)	253 (34.0)	0.342

Baseline Clinical Characteristics (3)

	Radial (n=1003 pts)	Femoral (n=745 pts)	p-value
Total Cholesterol	179.1 ± 44.8	177.7 ± 45.2	0.538
Triglyceride	133.1 ± 100.5	125.5 ± 94.7	0.124
HDL-C	43.5 ± 15.6	42.3 ± 14.9	0.154
LDL-C	108.2 ± 37.5	111.2 ± 43.4	0.137
CKMB(max)	127.2 ± 124.9	155.5 ± 159.1	0.036
hsCRP	1.76 ± 4.4	17.19 ± 38.6	< 0.001
Glucose	117.1 ± 45.8	164.6 ± 88.4	< 0.001
Creatine(max)	1.18 ± 0.7	1.3 ± 1.2	0.019

Stent Information in AMI

	Radial (n=1003 pts)	Femoral (n=745 pts)	p-value
DES	958 (99.7)	691 (96.1)	< 0.001
SES (Cypher)	119 (12.4)	88 (12.2)	
PES (Taxus)	110 (11.4)	215 (29.9)	
ZES (Endeavor)	377 (39.2)	158 (22.2)	
EES (Promus /Xience)	352 (36.6)	230 (32.0)	
BMS	3 (0.3)	28 (3.9)	

In-hospital Complications (1)

	Radial (n=1003 pts)	Femoral (n=745 pts)	p-value
Cardiogenic shock	30 (3.0)	68 (9.1)	< 0.001
Temporary pacemaker	32 (3.2)	33 (3.5)	0.177
Defibrillation	17 (1.7)	17 (2.4)	0.347
CVA/Stroke/TIA/ICH	3 (0.3)	6 (0.8)	0.144
Transfusion	20 (2.0)	63 (8.5)	< 0.001
Decrease Hct	13 (1.3)	16 (2.1)	0.168
Access site hematoma	-	28 (3.8)	< 0.001
Major hematoma (>4cm)	-	5 (0.7)	0.010
Minor hematoma (<4cm)	-	22 (3.0)	< 0.001
Pseudoaneurysm	-	2 (0.3)	0.100
Dissection	1 (0.1)	4 (0.5)	0.091
AV fistula	-	1 (0.1)	0.246

In-hospital Complications (2)

	Radial (n=1003 pts)	Femoral (n=745 pts)	p-value
No reflow	184 (23.5)	62 (8.8)	< 0.001
Limb ischemia	-	1 (0.1)	0.245
Thrombus aspiration	226 (22.7)	100 (13.5)	< 0.001
Change access route for PCI	2 (0.2)	6 (0.8)	0.063
Procedural Success	878 (98.9)	697 (98.0)	0.168

In-hospital Clinical Outcomes-AMI

-Univariate Analysis-

	Radial (n=1003 pts)	Femoral (n=745 pts)	p-value
Death	24(2.4)	49 (6.6)	< 0.001
Cardiac Death	14 (1.4)	38 (5.1)	< 0.001
TLR	17 (1.7)	35 (4.7)	< 0.001
TVR	19 (1.9)	42 (5.6)	< 0.001
Non TLR TVR	2 (0.2)	7 (0.9)	0.032
Non TVR	60 (6.0)	31 (4.2)	0.090
TLR MACE	30 (3.0)	84 (11.3)	< 0.001
TVR MACE	47 (4.7)	114 (15.3)	< 0.001

Six months Clinical Outcomes-AMI

-Univariate Analysis-

	Radial (n=622)	Femoral (n=429)	p-value
Death	27 (4.3)	48 (11.2)	< 0.001
Cardiac	16 (2.6)	31 (7.2)	< 0.001
Non cardiac	8 (1.6)	4 (0.9)	0.596
TLR	14 (2.3)	25 (5.8)	0.003
TVR	20 (3.2)	27 (6.3)	0.018
Non TLR TVR	6 (1.0)	2 (0.5)	0.361
Non TVR	64 (10.3)	29 (6.8)	0.048
TLR MACE	29 (4.7)	59 (13.8)	< 0.001
TVR MACE	48 (7.7)	81 (18.9)	< 0.001

Six months Clinical Outcomes-AMI

-Multivariate Analysis-

	OR _{unadjusted}	p-value	OR _{adjusted}	p-value
Death	0.360 (0.221-0.587)	< 0.001	0.283 (0.081-0.992)	0.049
Cardiac	0.339 (0.183-0.628)	0.001	0.277 (0.057-0.1345)	0.111
Non cardiac	1.384 (0.414-4.627)	0.597	0.411 (0.024-0.989)	0.539
TLR	0.372 (0.191-0.724)	0.004	0.497 (0.000)	1.000
TVR	0.495 (0.274-0.894)	0.020	0.662 (0.009-46.186)	0.849
Non TLR TVR	2.080 (0.418-10.352)	0.371	0.128 (0.001-17.823)	0.128
Non TVR	1.585 (1.002-2.499)	0.049	0.761 (0.046-12.533)	0.761
TLR MACE	0.307 (0.193-0.487)	<0.001	0.265 (0.059-1.188)	0.083
TVR MACE	0.359 (0.245-0.526)	< 0.001	0.304 (0.098-0.942)	0.039

Suggestion for Final Conclusion

** Prospective, multicenter, randomized trial comparing (2X2 random) will be needed..

1. Transradial vs. Transfemoral

2. Left radial vs. Right radial

...The results will greatly impact on our daily real world clinical practice...

Korean TRI-TFA Conclusion

1. Korean Multicenter TRI Retrospective Registry Data
; TRI>TFI—MACE reduction

2. AMI Data-Korea TRI Registry
 - 1) Overall AMI outcomes (STEMI+NSTEMI)
; Mortality & MACE benefit
 - 2) STEMI outcomes
; Mortality & MACE benefit
 - 3) NSTEMI outcomes
; mid-term major clinical end-points-similar

3. Summary & Conclusion
 - 1) definitely beneficial in reducing access site vascular & major bleeding complications
 - 2) AMI & STEMI; reduced mortality and MACE
 - 3) NSTEMI; may behavior differently...

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*Thank you for your attention!!
Good luck to Korean TRI Group!!*

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